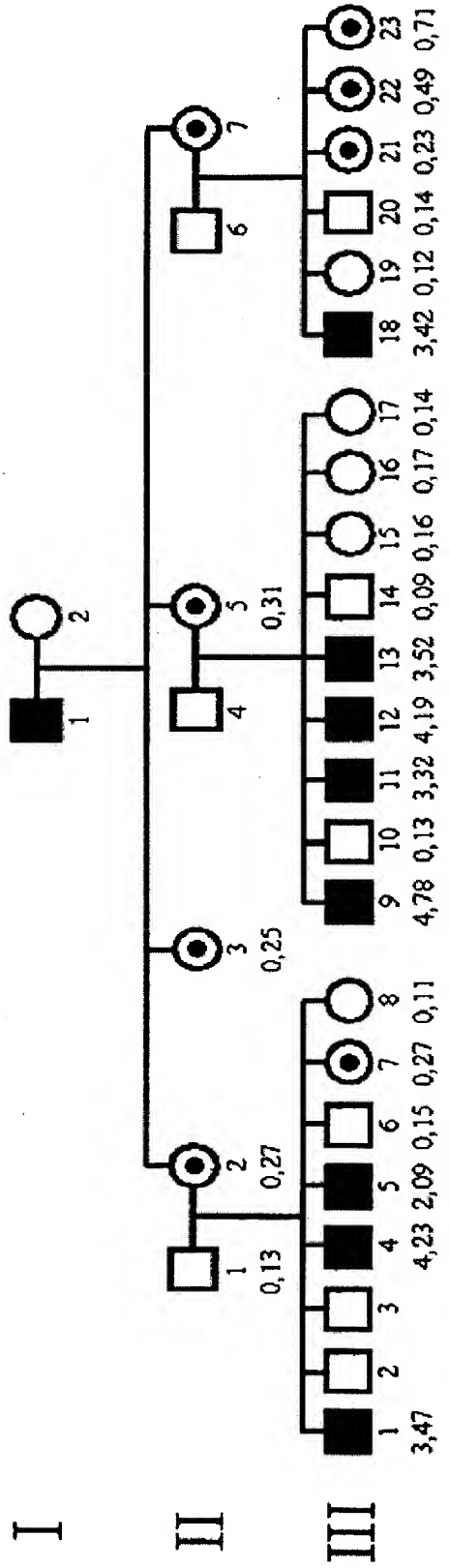


Figure 1A

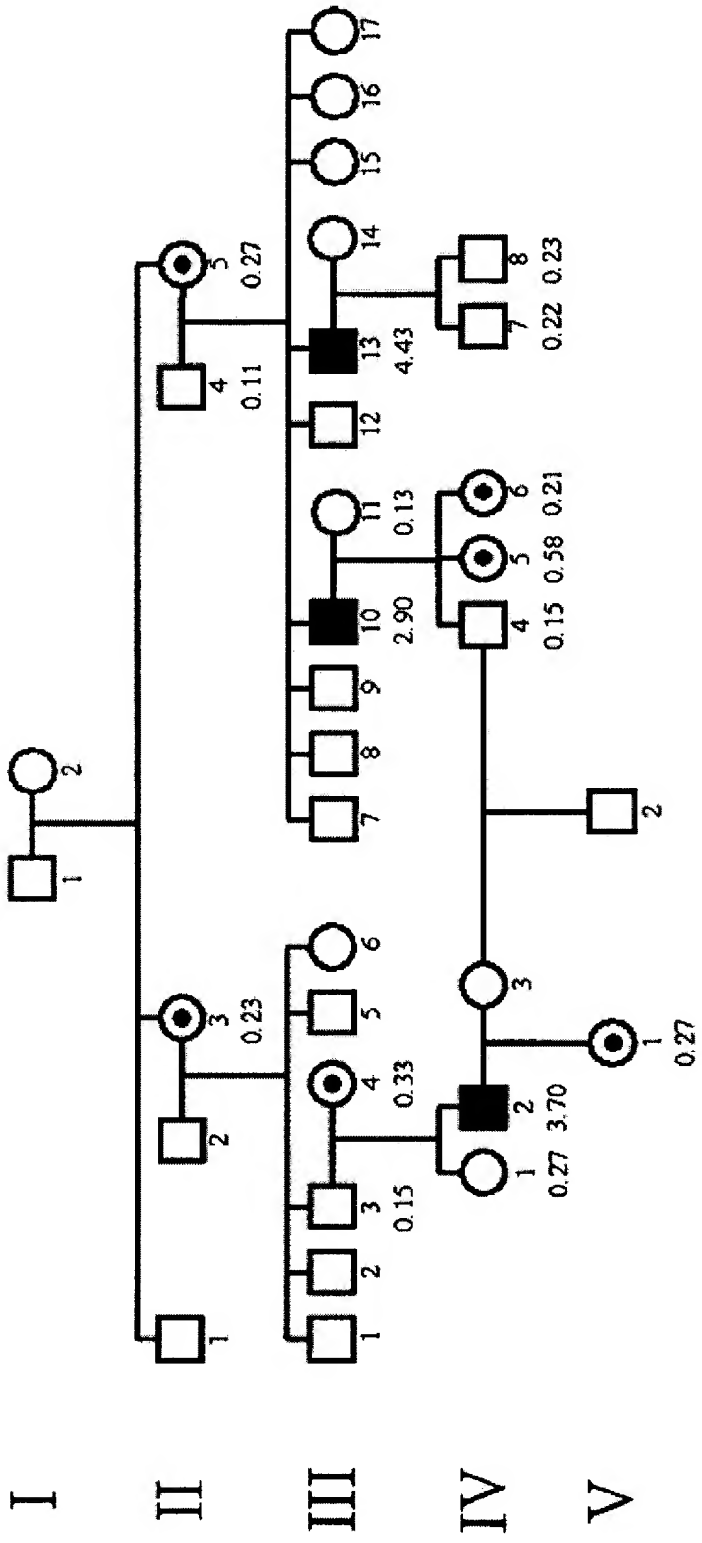


Figure 1B

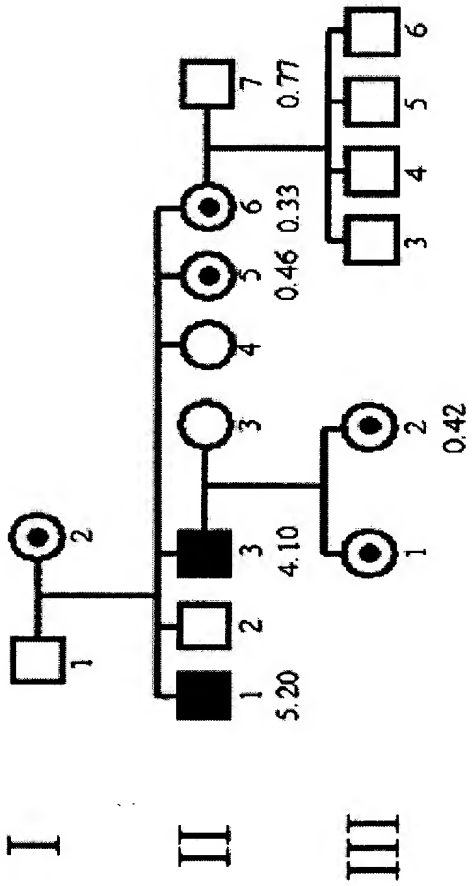


Figure 1C

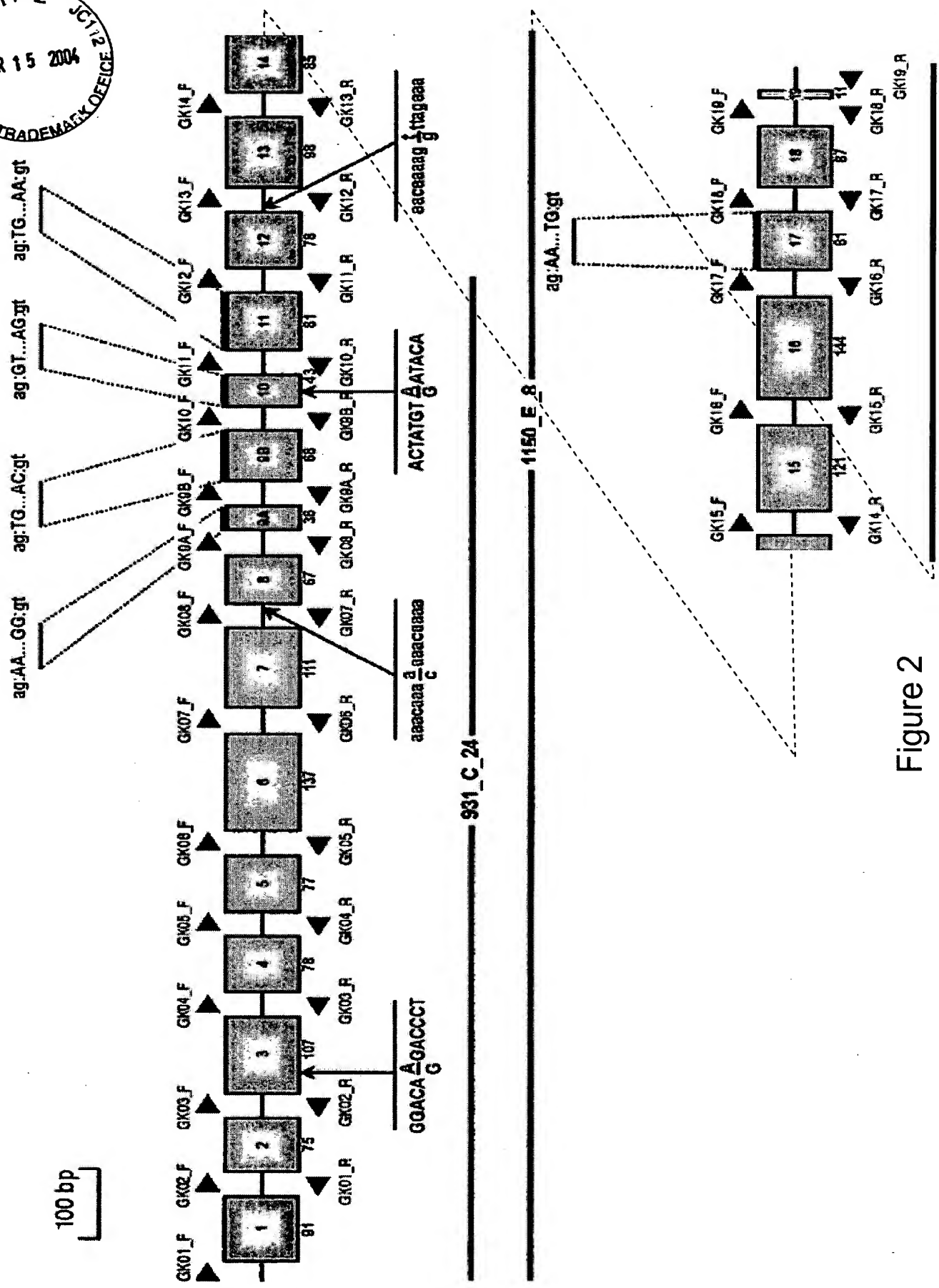
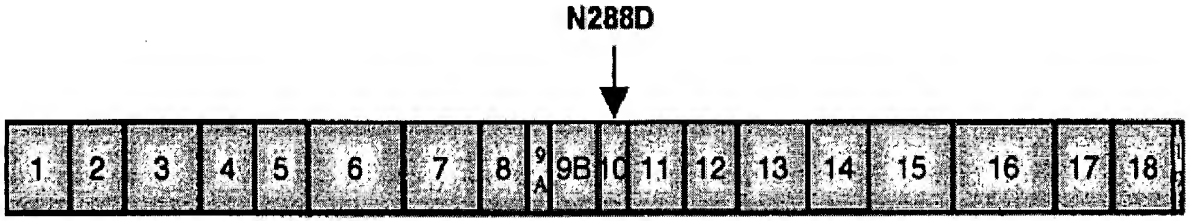


Figure 2

Figure 3A



G TAT GGA ACA GGA TGT TTC CTA TGT A/G AT ACA GGC CAT AAG

Figure 3B

	270	310	
GK N288D Mutant	FQIGQAKNTYGTGCFLLC**D**TGHKCVFSDHGLLTTVAYKLGR		SEQ ID NO: 6
glpk_human	FQIGQAKNTYGTGCFLLC**N**TGHKCVFSDHGLLTTVAYKLGR		SEQ ID NO: 7
glpk_rat	FQDGQAKNTYGTGCFLLC**N**TGHKCVFSEHGLLTTVAYKLGR		SEQ ID NO: 8
glpk_mouse	FQDGQAKNTYGTGCFLLC**N**TGHKCVFSEHGLLTTVAYKLGR		SEQ ID NO: 9
glpk_ecoli	VKEGMAKNTYGTGCFMLM**N**TGEKAVKSENGLLTTIAC--GP		SEQ ID NO: 10
glpk_pseae	VEPGQAKNTYGTGCFLLM**N**TGDKAVKSTHGLLTTIAC--GP		SEQ ID NO: 11
glpk_entca	FEKGMIKNTYGTGAFIVM**N**TGEEPQLSDNDLLTTIGY--GI		SEQ ID NO: 12
glpk_haein	VHAGQAKNTYGTGCFMLL**N**TGNKAITSKNGLLTTIACNAKG		SEQ ID NO: 13
glpk_bacsu	FEEGMGKNTYGTGCFMLM**N**TGEKAIKSEHGLLTTIAW--GI		SEQ ID NO: 14
glpk_yeast	YKPGAAKCTYGTGCFLLY**N**TGTKKLISQHGALTTLAFWFPH		SEQ ID NO: 15
glpk_mycge	TEPGMVKNTYGTGCFVLM**N**IGDKPTLSKHNLLTTVAWQLEN		SEQ ID NO: 16
glpk_entfa	FEPGMVKNTYGTGSFIVM**N**TGEEPQLSKNNLLTTIGY--GI		SEQ ID NO: 17
glpk_mycpn	VEPAMVKNTYGTGCFMLM**N**IGNELKYSQHNLLTTVAWQLEN		SEQ ID NO: 18
glpk_syny3	DRPGLLKCTYGTGAFLVA**N**TGQTVTRSQHRLLSTVAWTQTN		SEQ ID NO: 19

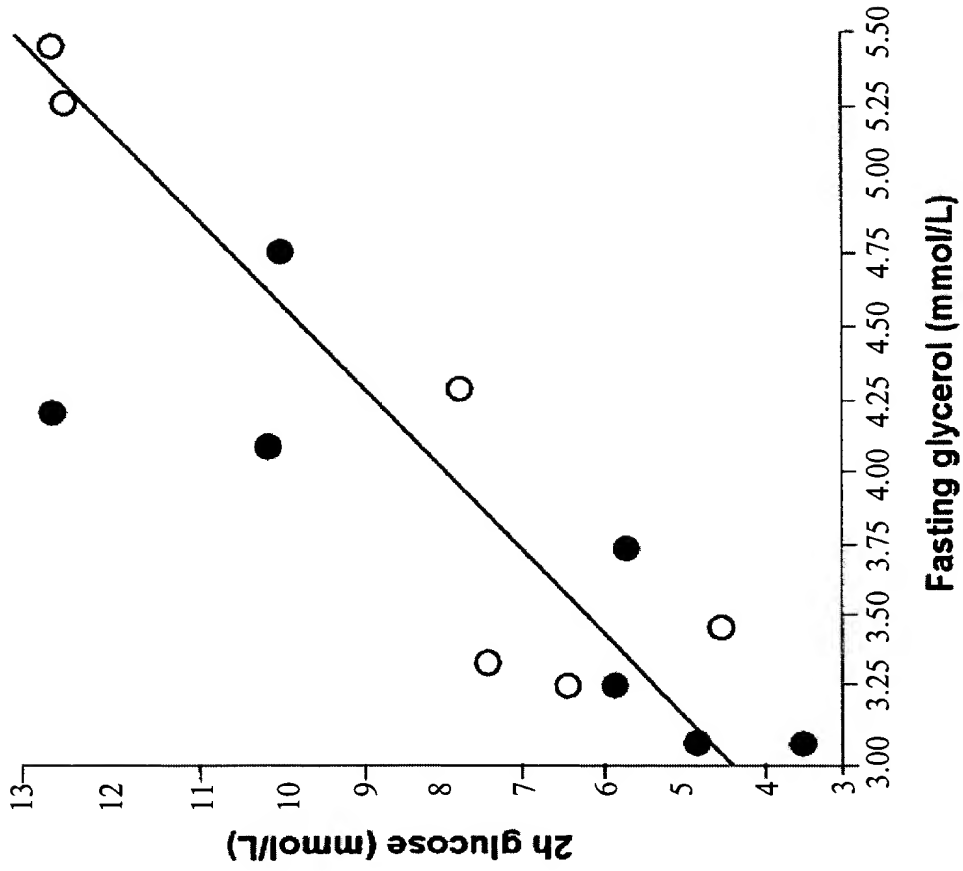


Figure 4A

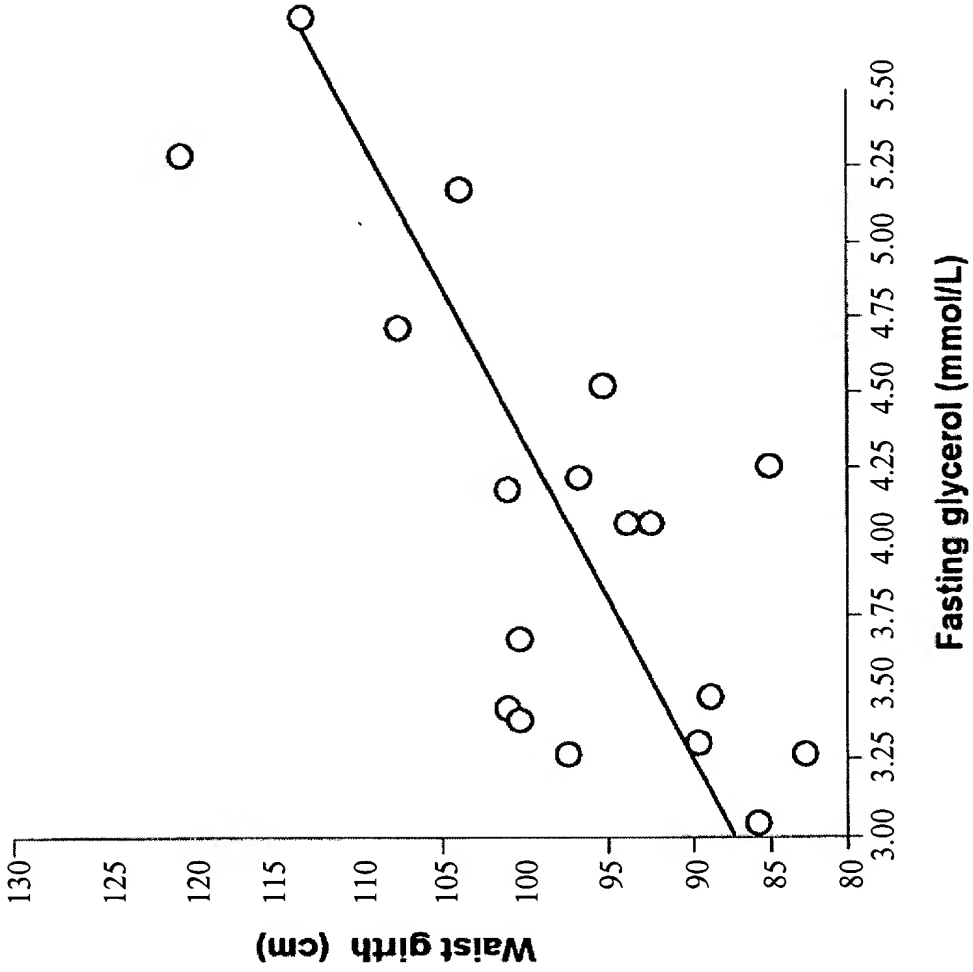


Figure 4B

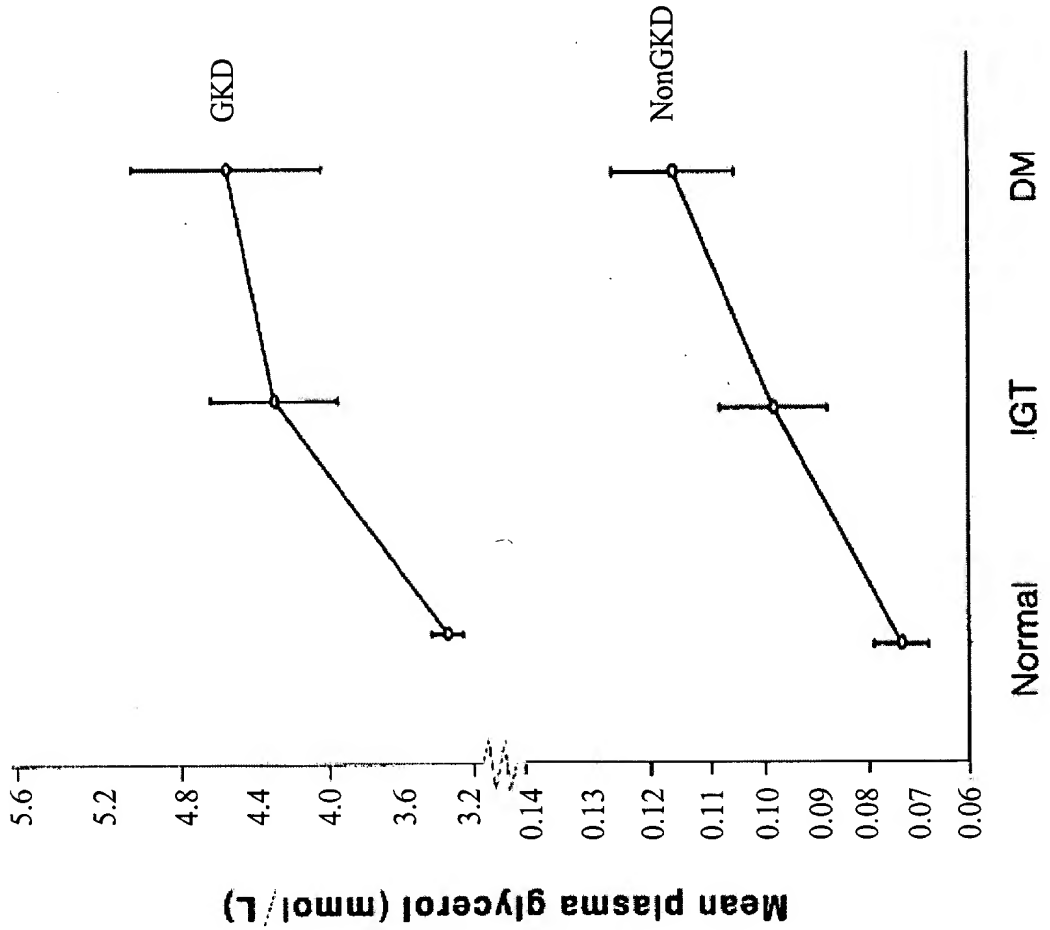


Figure 4C

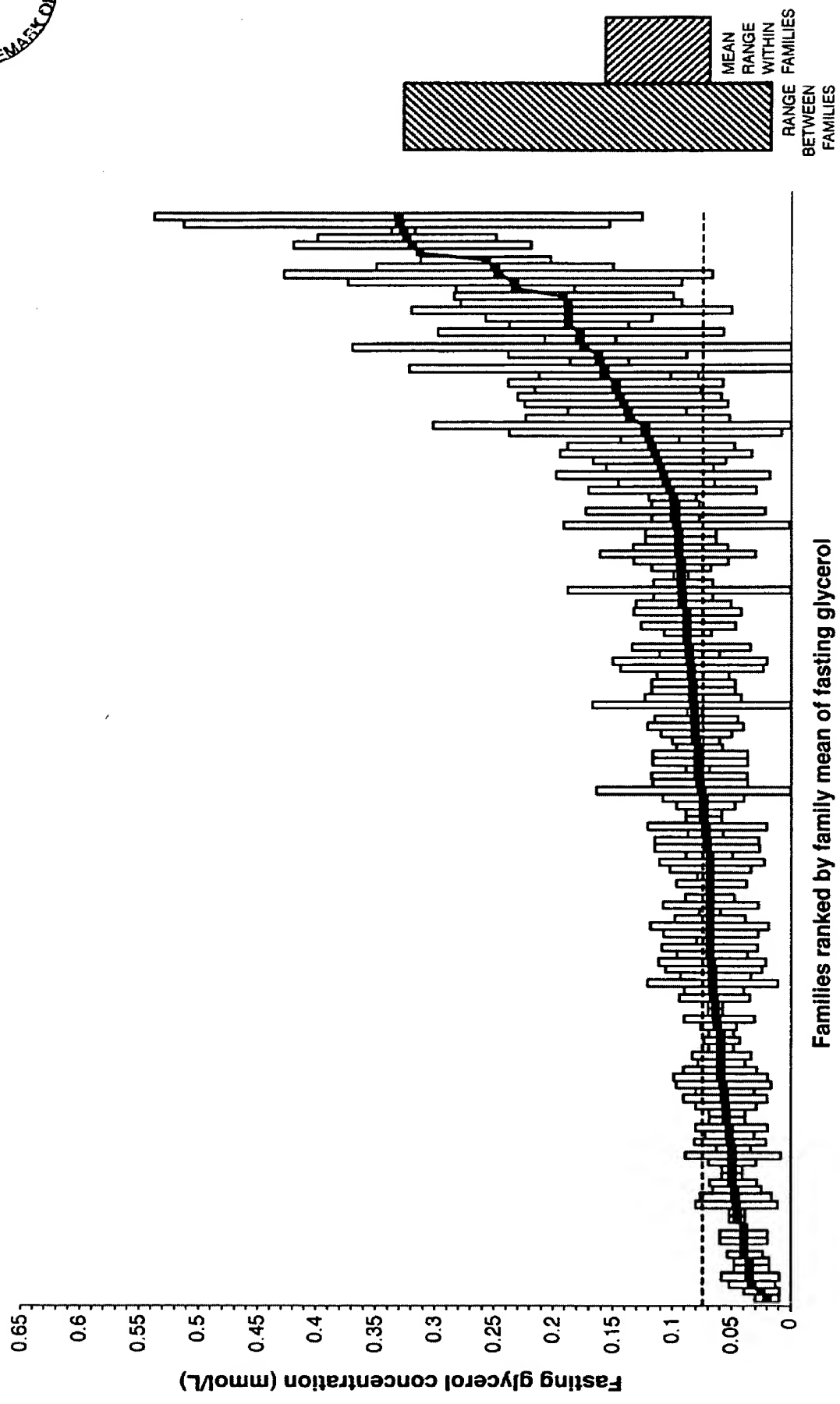


Figure 5

poly: A/G
location:13th base of exon 3

ATGCCTTCTTTTGTCAAAGATGGGTGGAACA[A/G]GACCCTAAGGAAATTCTACAT
TCTGTCT **SEQ ID NO: 1**

CAA vs CAG ==> silent

poly: A/C
location:17th base of intron 8
TAATGGTAAAAAACAAACAAA[A/C]AAACAAAAAACACACCAAAAAACCAA
SEQ ID NO: 2

poly: A/G
location: 29th base of exon 10

TTCATTCTCCCTTCAACCATAGGTATGGAACAGGATGTTTCTTACTATGT[A/G]AT
ACAGGCCATAAGGTtGGTTTTTAATAAAAATGATTAAGTCA **SEQ ID NO: 3**

AAT vs GAT ==> N to D

poly: G/T
location: 22nd base of intron 12
GAAATTGGTGAGTGTGTTCTAACAAAAG[G/T]TTAGAAAATCTGAAAAATGACACA
TTTCA **SEQ ID NO: 4**

Figure 6

SEQ ID NO: 5

Exon 1:
GGTTCAGCGGACGCGCGCGGCCTCGGTCTCTGGACTCGTCACCTGCCCCTCCCCCTCCCGCC
GCCGTCACCCAGGAAACCGGCCGCAATCGCCGGCCGACCTGAAGCTGGTTTCATGGCAGCCT
CAAAGAAGGCAGTTTTGGGGCCATTGGTGGGGGCGGTGGACCAGGGCACCAGTTCGACGCGC
TTTTTGGTGAGCCCGGGGTGACATGTGAAGAGGCGCTGAGC

Exon 2:
TGTAAAACGACGGCCAGTCATCCTTGATATCTGCCTGCATTTTTACATTAATATTACAATAT
CTTTTTCAGGTTTTCAATTCAAAAACAGCTGAACTACTTAGTCATCATCAAGTAGAAATAAA
ACAAGAGTTCCCAAGAGAAGGGTATGTTTCCTAATTTAATATGTAAAGACACATTATGTTTG
TTAGTCCATCTCACCCAACTTGCCC

Exon 3:
CAATGCCTTCTTTTGTCAAAGATGGGTGGAACA[A/G]GACCCTAAGGAAATTCTACATTCT
GTCTATGAGTGTATAGAGAAAACATGTGAGAAACTTGGACAGCTCAATATTGATATTTCCAA
CATAAAAGGTATTTTAGTAGAATATTTTACCCACA

Exon 4:
TGTAAAACGACGGCCAGTTGAGAGCTGTTTTCCTGAAGTAGTTCCTACTTGTTAAATTTTTG
ACTTCCTTCTGTTTAACTTTCTCTTTAAAGCTATTGGTGTCAGCAACCAGAGGGAAACCACT
GTAGTCTGGGACAAGATAACTGGAGAGCCTCTCTACAATGCTGTGGGTAAGCTGTCATGCAT
GGATGTCAAATGTAGGGCCTTTCTTCACATTGCAA

Exon 5:
TGTAAAACGACGGCCAGTTCCTTGATAGTGATTTCAGTAAGTTCTTATTTTTTTAAATGAAG
TTTTTCATGTATATTATTTTATTTTGGTCTATAGTGTGGCTTGATCTAAGAACCCAGTCTAC
CGTTGAGAGTCTTAGTAAAAGAATTCCAGGAAATAATAACTTTGTCAAGGTAAGAATTTCTT
CAGAAGTATACTATAAGAATGTTTCTTTTTTTAAAAAAAGTTTGCAGATTTCACTAGAAAGA
AGCATCTTATGGTACAATAGTTATTTGATACAATTTATAGAATCTTTTTCCCGGATAATTGA
GGCC

Exon 6:
TGTAAAACGACGGCCAGTTTCTTTTGTTTGGTGGTTTTGTTTTAAACTGTTACACTTTTCAT
TTGCTAACTGAACTTCACAACTGCTTTTAGTCCAAGACAGGCCTTCCACTTAGCACTTACTT
CAGTGCAGTGAAACTTCGTTGGCTCCTTGACAATGTGAGAAAAGTTCAAAAGGCCGTTGAAG
AAAAACGAGCTCTTTTTGGGACTATTGATTCATGGCTTATTTGGGTATGTTTAAATATAATG
GATATATGGAGAATTTTTTCAGAAATTTTTTCTAGACTGCCTTGCCTATTGTTTCTACTAGC
AGGTCAGACTTTTTAATTAGCA

Figure 7A

Exon 7:
TGTAAAACGACGGCCAGTTGTGCTCTGCTGATTATGACCCTTAACAATATGTAAATTAAATT
GCCAATAAGTACAAATTTAACCTGATTTTTTTACTCTGCCTAGAGTTTGACAGGAGGAGTCA
ATGGAGGTGTCCACTGTACAGATGTAACAAATGCAAGTAGGACTATGCTTTTCAACATTCAT
TCTTTGGAATGGGATAAACAACTCTGCGAGTAAGTTCTGTTTTGCTCTAAATATAGTTTTCC
CAATACACTACCTATTTATAACCGAAATCTTAATATTTTCAGATGTCAGTGGAGCA

Exon 8:
TGTAAAACGACGGCCAGTACAGTGTTAAATACCCAATCTTCTTGTTTTTCAGATTTTTTGGA
ATTCCAATGGAAATTCTTCCAAATGTCCGGAGTTCTTCTGAGATCTATGGCCTAATGGTAAA
AAACAAACAAA[A/C]AAACAAAAAACACACCAAAAAACCAAAAAACAAACAAAAAAAAACC
TAATAATTAAAGTTTTTTTATTACAAAACAAGTTTACTATTCATAATTCAAAAGTCAACTGT
GTTATGTTTTGTGACTTAAAAACTTTACAGTCCTTTTTACAATGG

Exons 9A and 9B
AAAGCTGGGGCCTTGGAAGGTGTGCCAATATCTGGGGTAAGTTTCATCACCAAGTGTCTCCC
CATCCCCACCCTTCCCCATGTTATGGCTTTCCTCCTCTTAGTTCATCAGTGTGCCTCTTTTT
AAACTAGGGAAAACAAGTAAAAGTTGCAAAATTGGANNNNTCTTGTTCTTACATGTCATACT
GTGGGCCATTGAGAATCTTTTGAATAAATTAATTTTAACTCTCCCTTCCCATACCTATTATC
TTACATATTAACAAATGGTATTAACAAATGGGGAAAATGGCCAAATGGAGAAAATGCAAGGA
AATAGACAGTTCATTCTTTGATAAATAAAAAATGAAAAATAAATCCTATGGCTCTTCTAAAA
AGAAAGTTAATACTATTGTATTAGTCAGTGTTCTTTATTGTCATTTATACTTTCAGTGTTTA
GGGGACCAGTCTGCTGCATTGGTGGGACAAATGTGCTTCCAGATTGGACAAGCCAAAAATAC
GTGAGTTTAAGAAACAGACTTAAAAACCAATGCTGTTTTGTTTTTTCTACTTGGTGCTTTGA
ATAAGGAAAAGCTTTTGAAGTTCATCCAGGATGAAAATCAATAGCTTAATAGCTCCAATATG
CATATATACACTTTTTACCATTTTTTTATATCTTTAAATAAAATACAAAA
TGCCATATATATGCACACTGATGAAGCTTATAAAGACCTAAATTTGTAGGCTGGGCGCGG

Exons 10 and 11:
TTATTTGCTTTCAATAAAATTGTCTTCTATTCATTCTCCCTTCAACCATAGGTATGGAACAG
GATGTTTCTTACTATGT[A/G]ATACAGGCCATAAGGTTGGTTTTTTAAATTAAAAAATTGA
TTTAAAAGTCTAAGTTCATCTAAATAATGCTTGAACATAATTTACTATTAAACAACTTTTAG
TCTTTAGCTTTTACTTAATCTTTATCAGGGTTTAATTTAGAGCTCAATACAAAATTTGAATC
GTTCTAATAAGAACCATTTTAGACTCTTTGAATTTTATATGTGTGTTTTTAATTGTGCTGGG
GGGAAATCTAGACTGAGACCTCATCAAATTCTTAATGCAAATCTAATTTGAAACAAGGAATA
AACTTTTTATACAGCTTAAATGTGTTCTTAATTCTGATCGTTTTGACTGTAAGGATTTATTT
TAAAAATTGGTTTATTGATTGCATTATTTTGTACCTATGTTATTTTAACTTTAAAAAAAAGT
TCTCATGTTATCTTTTCATTTTCCACTACTGAAATCTTTTTTTTTTTCTTTCTTACAGTGTGT
ATTTTCTGATCATGGCCTTCTCACCACAGTGGCTTACAAACTTGGCAGAGACAAACCAGTAT
ATTATGCTTTGGAAGTAAGTTCTTTTTAATCAATATGGATAATATGACAAACATTCAAAGCT
AATAAAAATCACAGAGTTTTCTAACACTTTTCTGGTAAATCTTAATACAGAGGACTCAAAAA
GTTCTGCTTTCTTGGCATTTGATTGAGTTGAAGGAACCTGAAACTGATCTGGGTGTCAGGAC
TCACAGGAGACCTTGATTAGATTGGTTCCTCAGTTCTTATGCCAATTAATCATGTCACCTTA
GGCATATTACTTGAGAGCTCTACAATGTGAGGTTTTTTTTTTTTTTATCTCTAAAGTTTAAT
CGGATTAACGTGCTCTCTAACATTTCTTTCATCTTGAAAATTCTTTGATTTTATAAATAAAA
TGCTCCAGTGTTCCAAAGAGAACCCTGGGCACAAATAGGCAGAACAACTCTCTTCACTTGTC
TCCTCATAAAAATAAATTTTGTGTAACATTTTGATATAGAAAAGAAAGCGACGAGATTTATG
CCACTTATCACTGGAAACATTTGTTTCAAACATTTTTGTATGTTATAGTAGGAATATGCCAG
CCTAAGCCTATA

Figure 7B

Exon 12:
TTTTATTAGTGACTTAGATAAAACTATGTTTGTATTAGAAGACCTAGTTTACATATTTGTCG
GAGTCTCAAAATGGAAACTGAATTCTGTCCATCTGATTGTGTCATACACAGAATATGCTCAA
TAAAAACCTTGGATAGTGATAAAATATATTCTGTCTTGAATTCCTTTTTTTCTTTAGGGTTC
TGTAGCTATAGCTGGTGCTGTTATTCGCTGGCTAAGAGACAATCTTGGAATTATAAAGACCT
CAGAAGAAATTGGTGAGTGTGTTCTAACAAAAG[G/T]TTAGAAAATCTGAAAAATGACACA
TTTCAGTATTTTATCTCTGCAAAGTAAATATCGATGCTTTGCCCCAAATGTGAT

Exon 13:
CCAGTTGTGTGATTTTTGTTTTGTTTTGTTTTAATGTTAGAAAAACTTGCTAAAGAAGTAGG
TACTTCTTATGGCTGCTACTTCGTCCCAGCATTTTCGGGGTAATATGCACCTTATTGGGAGC
CCAGCGCAAGAGGGTAAGTATTGAAAATATGGAGTGCTTTTGGGGATCTTGATTTAT

Exons 14 and 15:
TGTAAAACGACGGCCAGTTGATTATGTCCAATTTTCTCTTCCTGGACATTTCTGTCTACCAA
ATTTGACCTTTTCATATTTGAGATATTTCAAATTGATTGGTTTATATCATTCTAATCTGAAA
ATCTTTGTGCGTATTTTTAGGATAATCTGTGGACTCACTCAGTTCACCAATAAATGCCATAT
TGCTTTTGCTGCATTAGAAGCTGTTTGTTTCCAAACTCGAGAGGTAACAAATATGGGCCTGT
TTTCTTGTACTTAGTTCACTTTTATCACTCTTAAGTTATATGTTAACACCCGAGATTTATTC
AGTACTGAAAATGTAGTTAATCAAATATTAAGGCTGCCTAAATACTAATCTAAATATAAGCA
GGGTTTTCCCCCTTTTTCCAGCTGTCATTACCTTCTAAGTTCCTGTTCCCTGTCAGGCACTG
GGAAATTTATGGTTGTGGGGAGGCTGAGTGGCACACATTAGGCAAAGGAAACAGCACAAACA
TAGGCATCaAGGCAGAAAAACAGGGTGCAAAATAGAGTTGTATAGCTTAGCTGAATATCAAG
GTGAATGCAGAGGTGTAGTGAGAGAAAAGGTTGGCTGTGACCAGATCAAAGAGGGCTTAGAA
GACCAGAATAAGAAGTCTCAATTTATTCCATAGGCTCTTGGAAGCTCTTGAGAGTTTCTGAG
TGGAGGATTGCCATTTTCAGAGATGTTACTATGAAATAGATTTATAACATTAATTGCACTGG
TTTATTTAAGATTTTGGATGCCATGAATCGAGACTGTGGAATTCCACTCAGTCATTTGCAGG
TAGATGGAGGAATGACCAGCAACAAAATTCTTATGCAGCTACAAGCAGACATTCTGTATATA
CCAGTAGGTTAGTAAGTCTTCATTCCTTTAAACTCCCAGAGTAATGTTTCTTGTGGAATAAC
TAGTTCTTTGGG

Exon 16:
TGTAAAACGACGGCCAGTTCCCAGAGTAATGTTTCTTGTGGAATAACTAGTTCTTTGGGCAT
ATGTAACCACAAAGATATTGATGGAACTCTCTCTCCTCAGTGAAGCCCTCAATGCCCGAAAC
CACTGCACTGGGTGCGGCTATGGCGGCAGGGGCTGCAGAAGGAGTCGGCGTATGGAGTCTCG
AACCCGAGGATTTGTCTGCCGTCACGATGGAGCGGTTTGAACCTCAGATTAATGCGGAGGGT
ACATTTAAAGAATGAAATGTTCAGTGATATACTGTGAAAACGACCTTAGTGCACGGGAGTTT
TGTTTTTCTGTTTAGTTAAAAGTTAAGGAACCAAGTAAAATAGTAAATGTTATCATTGCAGA
TTCGGCTGCCAAGCATATTGGGCTTTACTGAATAAATGTGAATGAGAGAAATCGTTGCTTAT
CAAAAGAACTTCTAAAATCACTTTTTAAAAATCATT

Exon 17:
TGTAAAACGACGGCCAGTAGCCCTACTGCAGTTTAATGTGTCAATAATTTGTCAAGAATGTT
GAGTGATCATAAGTATGGTACTAAGAACATCTCAGCAAACTACCTTTCGTTATGTGTTTTTT
CTACCTTCTAATTCTAGAAAGTGAAATTCGTTATTCTACATGGAAGAAAGCTGTGATGAAGT
CAATGGGTTGGGTTACAACTCAATCTCCAGAAAGTGGTAAAAATGTTTTTGTTTATTATTGT
CACATTTTCTTAGTATATTAAATAGTTATTTAAGTATCTAGGCATTTACACATAGCCAGGCT
GCTCTGAAGAAAAGCATTATCATATGTCCAGAGATTCTGACATTTTGAAAACACTTTAAAGT
TCTAAACACAAAATGTAAATTATCAGGTGT

Figure 7C

Exon 18:
TGTAAAACGACGGCCAGTTGGTTTGGTTTGCTTGACTGGAATCTCTTCTGCTTGGATGACCA
CAGGTGACCCTAGTATCTTCTGTAGTCTGCCCTTGGGCTTTTTTATAGTGAGTAGCATGGTA
ATGTTAATCGGAGCAAGGTACATCTCAGGTTAGTTACTCTTTAAATTAGACAACTCTATTAG
TTAGCTTTAATGTTTTCGTGTATAACTTAGCAGAAATTTTTCAGTGTTTTTCATTCTTTCTG
TGTCTAGGAAGCTGGAAAATCAATTAAAGGTCTAATTAGTTAGACCAATTAATCTTTGGGGG
CAGTTAGAAGTAAGAACTGTGACTCTGCTTACCCTTTTTAAATTTTTAATGTGATGACTTCT
TTAAGAGGGACTACATTCTGCTGTCAGCTGCAGCAATAAGCAAAAGTGAAAATACTAATATT
TAAATGACAGGACTTTCAGACTGACTGCTGAAAGTTAAAGTATACTT

Exon 19:
AAAATTACTGGCTTAAATGGAAATGATGCTTCTTATTCTGTATGTTCCCATGAAAGTGAAAC
TTAAAAAAAAAAATTCATGATTAGGGTTTCATGAAAAGGCCTTGTTTCTATGAAAATTGAGAC
AGGTTGCATCTCTCTAAGCTAAAAGATGGGCTATGTGTCTAGAGTCTTAGACTTCTAAAATG
CATGTGGTCACTATATGTAGGTTATCTCTTCGGTGACATACACTGCAATTTGAGAGGGCTGG
AAATTGTTTGCCTTGGTAAACGATTAGCAACAGTGGCAATATTTGTTAATTTTGGAATTGGC
CCTGTTTGTTGCATTTTAATTGTGAGGCATGATTTAGAAATCATATGGACTTTCTAGCTTAA
TAAATGATTGAATCATCTGCATTGCTTTAACTCCTGAATTGTATGCATGTATTATTGACATA
TATGGTTTTTGTTCCCCATTTCAGGTATTCCATAAAACCTACCAACTCATGGATTCCCAAGA
TGTGAGCTTTTTACATAATGAAAGAACCCAGCAATTCTGTCTCTTAATGCAATGACACTATT
CATAGACTTTGATTTTATTTATAAGCCACTTGCTGCATGACCCTCCAAGTAGACCTGTGGCT
TAAAATAAAGAAAATGCAGCAAAAAGAATGCTATAGAAATATTTGGTGGTTTTTTTTTTTTT
TAAACATCCACAGTTAAGGTTGGGCCAGCTACCTTTGGGGCTGACCCCCTCCATTGCCATAA
CATCCTGCTCCATTCCCTCTAAGATGTAGGAAGAATTCGGATCCTTACCATTGGAATCTTCC
ATCGAACATACTCAAACACTTTTGGACCAGGATTTGAGTCTCTGCATGACATATACTTGATT
AAAAGGTTATTACTAACCTGTTAAAAATCAGCAGCTCTTTGCTTTTAAGAGACACCCTAAAA
GTCTTCTTTTCTACATAGTTGAAGACAGCAACATCTTCACTGAATGTTTGAATAGAAACCTC
TACTAAATTATTAAAATAGACATTTAGTGTTCTCACAGCTTGGATATTTTTCTGAAAAGTTA
TTTGCCAAAACTGAAATCCTTCAGATGTTTTCCATGGTCCCACTAATTATAATGACTTTCTG
TCTGGGTCTTATAGGAAAAGATACTTTCTTTTTTCTTCCATCTTTCCTTTTTATATTTTTTA
CTTTGTATGTATAACATACATGCCTATATATTTTATACACTGAGGGAGCCCATTTATAAATA
AAGAGCACATTATATTCAGAAGGTTCTAACAGGG

Figure 7D

Table 1. Characteristics of Carriers of the N288D GK Gene Mutation and of Their Unaffected Relatives

	Men			Women		
	N288D carriers	Unaffected relatives	p	N288D carriers	Unaffected relatives	p
N	18	18		14	14	
Age (years)	46.4±14.2	42.0±18.8	0.32	44.9±13.5	43.7±17.8	0.87
Uncorrected triglyceride (mmol/L)(1)	6.26±1.13	2.05±0.54	<0.0001	2.84±1.20	1.30±0.65	0.0002
Glycerol (mmol/L)	3.99±0.71	0.10±0.04	<0.0001	0.54±0.14	0.10±0.02	<0.0001
Corrected triglyceride (mmol/L)(1)	2.27±0.75	1.95±0.53	<0.0001	2.31±1.22	1.19±0.67	0.03
Free fatty acid (mmol/L)	0.77±0.22	0.57±0.25	0.01	1.29±0.35	0.76±0.17	0.0004
Fasting glucose (mmol/L)	5.2±0.74	4.8±0.31	0.13	5.0±0.7	4.6±0.3	0.10
2h glucose following OGTT (mmol/L)	7.9±3.1	5.8±1.6	0.02	7.0±6.1	5.0±2.1	0.04
Fasting insulin (mU/L)(1)	13.3±14.0	15.1±14.8	0.62	12.2±13.1	9.0±3.4	0.60
Waist girth (cm)	97.7±9.3	88.1±12.3	0.01	88.5±3.8	79.8±5.8	0.03
Body mass index (kg/m^2)	27.9±4.1	24.9±3.9	0.03	28.1±5.5	23.1±2.3	0.001
%Total body fat	27.1±7.2	22.9±7.6	0.01	46.8±8.1	33.9±11.3	0.001

(1) Geometric mean, p after log transformation.

Figure 8

Table 2. Fasting plasma glycerol concentration (mmol/L) in the initial cohort of 1056 individuals, by risk factor of glucose intolerance and diabetes mellitus

		No.	Glycerol geometric mean ± SD	p
Gender				
men		717	0.065 ± 0.081	
women	- premenopaused	137	0.071 ± 0.093	<0.0001
	- menopaused	202	0.099 ± 0.085	
Age (Y)				
	<50	486	0.071 ± 0.082	
	50 - 60	408	0.076 ± 0.106	0.0015
	>60	165	0.083 ± 0.053	
Fasting glucose (mmol/L)				
	< 5.2	449	0.068 ± 0.080	
	5.2 - 5.9	336	0.070 ± 0.090	<0.0001
	6.0 - 6.9	271	0.090 ± 0.100	
Fasting insulin (UI)				
	<15	637	0.067 ± 0.082	0.02
	≥15	419	0.086 ± 0.101	
2 hours glucose (mmol/L)				
	<7.8	572	0.062 ± 0.071	
	7.8 - 11.0	283	0.081 ± 0.101	<0.0001
	ε11.1	201	0.102 ± 0.110	
Triglyceride (mmol/L)				
	≤ 2.2	389	0.057 ± 0.062	<0.0001
	>2.2	667	0.082 ± 0.103	
Free fatty acid (mmol/L)				
	< 0.6	589	0.066 ± 0.054	<0.0001
	ε0.6	467	0.111 ± 0.112	
Body mass index (kg/m2)				
	≤ 27	428	0.060 ± 0.087	<0.0001
	>27	628	0.079 ± 0.097	

p value from a one-way ANOVA

Figure 9

Table 3. Multivariate analysis of the relationships of fasting plasma glycerol concentration with impaired glucose tolerance (2h glucose 7,8-11,0 mmol/L following a 75 g oral load) before and after adjustment for covariates identified in

	Model 1	Model 2	Model 3	Model 4
Glycerol (log)				
ß	1.75	1.62	1.46	0.77
Odds ratio	5.76	5.42	4.33	2.46
p	<0.0001	<0.0001	<0.0001	0.01
Triglyceride (log)				
ß		0.54	0.35	0.12
Odds ratio		1.75	1.42	1.12
p		0.02	0.11	0.63
Body mass index (kg/m^2)				
ß			0.10	0.05
Odds ratio			1.10	1.05
p			<0.0001	0.01
Fasting insulin (log)				
ß				0.57
Odds ratio				1.31
p				0.39
Fasting glucose (mmol/L)				
ß				1.13
Odds ratio				2.65
p				<0.0001
Free fatty acid (log)				
ß				1.62
Odds ratio				4.33
p				0.007

Odds ratios are expressed as the increase in the risk of 2h glucose 7.8-11.0 mmol/L following a 75 g oral load, associated with a 1-SD increase in the variables studied. ß denotes the standardized estimate which is the parameter estimate of each variable in the multivariate logistic model. All models included age and gender as covariates. Otherwise, only the variables included in each model are shown. Subjects with severe hyperglycerolemia due to the N288D mutation in the

Figure 10